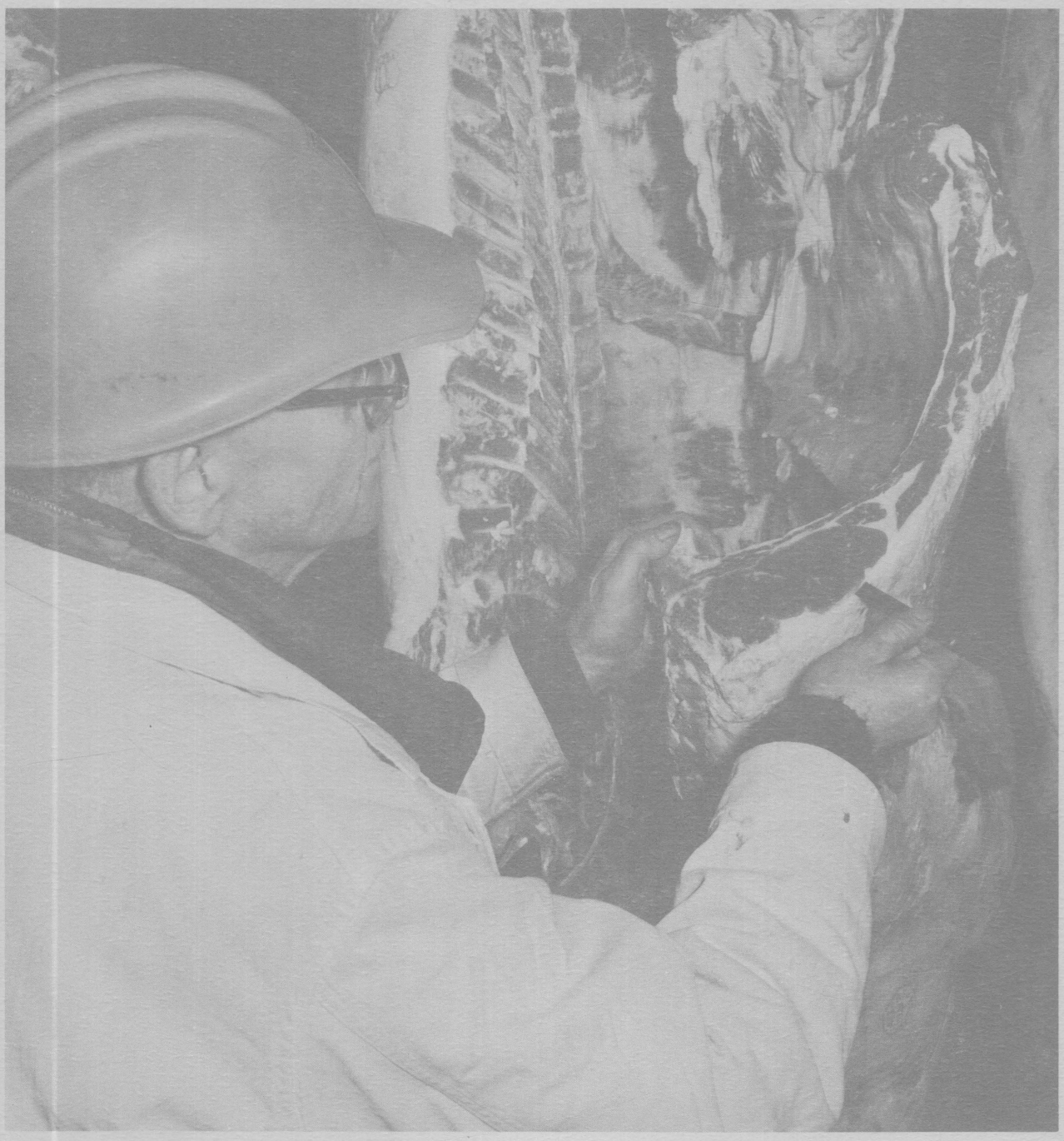
Bulletin 510

AUCTION SELLING OF SLAUGHTER CATTLE ON A CARCASS BASIS

— an alternative approach



COOPERATIVE EXTENSION SERVICE/THE OHIO STATE UNIVERSITY

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This study and experiment would not have been possible without the support of the feeders who consigned cattle, and the packer buyers who were innovators in this first endeavor. Some of the introductory material presented is based on OARDC research project (Hatch) 313, an Ohio contribution to regional research project NCM-36, "Long-Run Adjustments in Livestock Market Organizations in the North Central Region."

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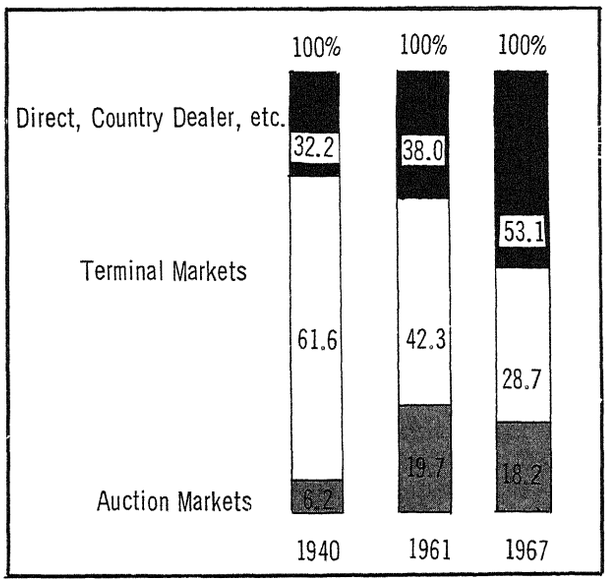
CONTENTS

AUCTION SELLING OF SLAUGHTER CATTLE ON CARCASS BASIS

Cattle feeders have had the choice of marketing cattle through terminal markets, selling direct from the feed lot, using contractual arrangements, or selling through the auction. Along with changes throughout our economy, the marketing practices of cattle producers and cattle buyers have also been changing. More cattle are being purchased direct by packers, while auctions are providing about the same number in percentage terms, and a real decline has been experienced in terminal markets. (Chart 1)

CHART 1

Cattle Purchases by Packers Through Different Market Outlets



Source: Packers and Stockyards Resume, Packers and Stockyards Administration, U.S.D.A.

In 1940 packers purchased over 60 percent of cattle needs at terminal markets; by 1967 terminal markets provided less than 30 percent. Purchases of cattle through auction markets increased from 6.2 percent in 1940 to 18.2 in 1967; however, for the past 10 years the auctions' share of the market has remained relatively constant. The result has been more and more cattle being sold direct—53.1 percent in 1967 compared with 32.2 percent in 1940. In the western part of the United States, direct marketing of fed cattle accounts for a considerably greater percent of total marketings than in the Midwest.

Several factors have contributed to this trend: improved truck transportation, the growth of commercial feedlots, and location of modern slaughtering plants in livestock producing areas. Underlying these developments has been an accompanying trend toward specialization and greater volume in both the cattle feeding industry and the slaughtering industry.

Cattle feeders are recognizing that considerable difference often exists between carcasses of the same quality grade. They are aware that the retail value of carcasses of the same quality grade and weight may vary substantially. Thus, cattle feeders are expecting more precision in pricing by selling on a carcass basis rather than a live basis.

"Cutability," or yield, grades for beef were made available to the meat and livestock industry by the Livestock Division, Consumer and Marketing Service of the USDA in June 1965. The definition of these yield grades, which reflect the amount of saleable meat in a carcasss, has permitted much greater precision in describing differences between carcasses than was possible with only the quality grades of Prime, Choice, Good, and Standard.

On April 6, 1968, under section 201.99 of the Packers and Stockyards Act, regulations regarding purchase of livestock by packers on a carcass grade and weight basis were outlined. More recently, The Wholesome Meat Act of 1967 has been implemented with the result that meat packing plants have improved their facilities. These improvements have enabled slaughterers to maintain better records of carcasses and have increased the efficiency of carcass handling. One result is that packers are more and more interested in buying on a carcass basis. These factors also have provided impetus for feeders to consider selling direct and to sell livestock on a carcass weight and grade basis.

At the same time, cattle producers and buyers have become increasingly aware of the difficulty in estimating the dressing percent and USDA grade of live cattle. The difficulty or lack of precision of buyers to make accurate estimates of dressing percentage on the grades of live cattle was documented in a study conducted in Ohio in 1966 as well as in a North Central Regional research study conducted in 1954.[1, 2]

[1] Thomas, P.R., "Comparisons Between Buyer Estimates of Live Cattle Yield Grades and Actual Carcass Performance" (Unpublished Ph.D. Dissertation), Ohio State University, June, 1967.

[2] E. S. Clifton, North Central Regional Publication No. 53, "Pricing Accuracy of Slaughter Cattle, Veal Calves and Lambs", October, 1954.

Accuracy of Buyer Estimation

Comparisons between the North Central Regional research and the 1966 Ohio study regarding buyer estimates of dressing percent are presented in Table 1. In both studies, buyers estimated dressing percentage correctly only about 10 percent of the time. More significantly, the errors of estimation were consistently greater in the direction of underestimation than of *overestimation.* In over half of the total cases involved in each study, buyers estimated the actual dressing percentage too low; in only about a third of the cases they estimated too high. The Ohio study indicated that about 27 percent of the animals were estimated with an error of at least 2 percent. The average error in estimating dressing percent was 1.4 percent.

TABLE 1

Comparison Between 1954 Regional Study and 1966 Ohio Study Accuracy in Estimating Dressing Percent

	1954 Regional Study		1966 Ohio Study	
	Number of Head	Percent	Number of Head	Percent
Estimated too High	234	33.0	95	39.96
Estimated correctly	73	10.3	25	9.70
Estimated too Low	403	56.7	137	53.30
Total	710	100.0	257	100.00

Sources: North Central Regional Publication No. 53, October, 1954.

"Comparison Between Buyers' Estimates of Live Cattle Yield and Grades and Actual Carcass Performance," Paul R. Thomas, Unpublished Ph.D. Dissertation, O.S.U., June, 1967.

Both studies thus indicate that buyers tend to be conservative in their estimates—conservative as to what the value of the animal will be and also what they think the dressing percentage will be. As buyers look at live animals, they are not able to tell precisely what carcass performance will be, they, therefore, tend to estimate the merits of each animal or group of animals too low.

Selling livestock on the basis of hot carcass weight eliminates the need to estimate dressing percentage and thus also eliminates one source of pricing error. It is also recognized that dressing percentage does not reflect the yield grade of a carcass or the amount of saleable product in a carcass. For example, animals may have a high dressing percentage, but still have a small ribeye and excessive fat covering.

The Ohio 1966 study also examined buyers' estimates of quality grade compared with the actual federal grade. As seen in Table 2 the buyers looked at 235 live animals and estimated that 38 of the carcasses would grade Good. Actually only 22 graded Good; 15 others graded Choice, and one actually graded Prime.

TABLE 2

Comparison Between Actual and Estimated Carcass Grade For 235 Fed Cattle Classified by U. S. Carcass Grades Ohio, 1966

Actual Federal Grade	Estimated Federal Grade: Prime	Choice	Good	Total
Prime	[1]	15	1	17
Choice	4	[144]	15	163
Good	0	33	[22]	55
Total	5	192	38	235

Estimated Correctly: Total Observations, 71.06%; Prime, 5.88%; Choice, 88.34%; and Good, 40.00%.

Source: "Comparison Between Buyers' Estimates of Live Cattle Yield Grades and Actual Carcass Performance," Paul R. Thomas, unpublished Ph.D. dissertation, O.S.U., June, 1967.

Considering the total number of observations, the buyers correctly estimated the quality grades of 71 percent of the cattle. Buyers were best at estimating Choice carcasses—making correct estimates about 90 percent of the time. They were correct on Good classification over 40 percent and on Prime only about one time out of 12. Buyers tended to concentrate estimates in the middle category (Choice) and underestimate the number that were either better or poorer than the middle grade.

The results of this portion of the Ohio research closely paralleled results reported in the 1954 North Central Regional Study involving estimates on 710 animals which stated in part: "If the steers and heifers had been estimated and priced on a full grade basis, the data indicate that about 67 percent of them would have been estimated correctly, whereas about 33 percent would have been one grade or more in error either above or below the actual carcass grade."[3]

From the foregoing, and as can be seen in Chart 2, buyers overestimated the number of Choice carcasses and underestimated the number of Prime and Good carcasses. It would seem that the buyers showed a general tendency toward grading a carcass Choice regardless of actual grade. Thus another source of pricing error is observed and the need for increased precision apparent.

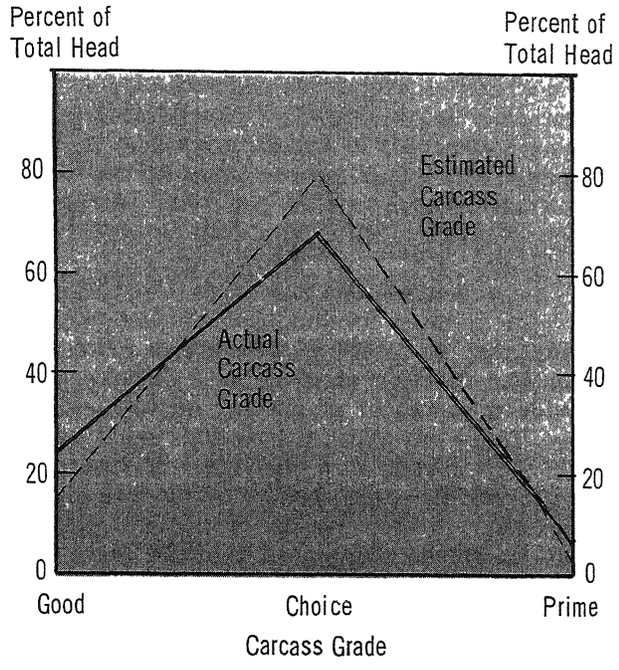
Quality grade estimates were also recorded on 24 lots involving a total of 550 animals from Ohio and Missouri during eight selected weeks of 1966. The data were analyzed by listing the total number of animals estimated to grade Prime, Choice, and Good. The actual carcass grades were then listed in the same manner. An analysis of the data is presented in the following table.

As can be seen in Table 3, buyers were relatively correct in estimating the number of Choice carcasses when all 550 animals were analyzed as a group. This would indicate that a buyer is able to average out in

[3] E. S. Clifton, North Central Regional Publication No. 53, "Pricing Accuracy of Slaughter Cattle, Veal Calves and Lambs," October, 1954, p. 16.

CHART 2

Comparison Between Actual and Estimated Carcass Grade For 235 Fed Cattle 1966 Classified by U. S. Carcass Grades



Source: "Comparison Between Buyers' Estimates of Live Cattle Yield Grades and Actual Carcass Performance," Paul R. Thomas, unpublished Ph.D. dissertation, O.S.U., June, 1967.

his estimates of groups of animals over a period of time—more accurately as he looks at groups than as he looks at individual animals. It is also recognized that in the purchase of groups direct from feedlots, many of the buyers had purchased animals from these feedlots before and thus may have been able to use past experience as an aid in making estimates.

In addition to the need to accurately estimate quality grade, it is equally important that buyers be able to estimate closely the yield grade of an animal, if they are to price accurately.[4] The extent to which yield varies within quality grades in carcasses was explained by J. C. Pierce.[5]

> For example, in the Choice grade, we have carcasses that yielded as much as 55 percent of their weight in trimmed retail cuts from the round, the rib, the loin, and the square cut chuck, and some that yielded as low as 40 percent. The full significance of this 15 percent range, I think, can be indicated in some monetary way since we also have found that by using present prices for Choice grade beef, one percent change in yield changes the retail value of that carcass by at least a dollar and a quarter a hundred. From this you can see that we have actually cut some 600-pound Choice carcasses, for example, that cut more than 100 dollars more than other 600-pound Choice carsasses.

During the 1966 Ohio study, buyers made yield estimates on 209 cattle, purchased individually from auction markets during eight selected weeks of 1966.

TABLE 3

Comparison Between Actual and Estimated Carcass Grade For 550 Fed Cattle in 24 Lots, 1966 Classified by U. S. Carcass Grades

Grade	Carcass Grade Buyer Estimates		Carcass Grade Federal Grader	
	Number	Percent	Number	Percent
Prime	31	5.64	16	2.91
Choice	445	80.91	436	79.27
Good	74	13.45	98	17.82
Total	550	100.00	550	100.00

Source: "Comparison Between Buyers' Estimates of Live Cattle Yield Grades and Actual Carcass Performance," Paul R. Thomas, unpublished Ph.D. dissertation, O.S.U., June, 1967.

Table 4 and Chart 3 indicate a tendency on the part of the buyers to give an average yield grade for most individual animals. This is emphasized by the fact that buyers overestimated the numbers of animals making the yield grade of 3 and underestimated on all the other grades.

As indicated, the buyers estimated that 48 of the 209 animals would have a yield score of 2. Of these 48 animals that buyers indicated would score 2, only 29 measured had a yield score of 2. The buyers also estimated that there were 159 animals out of the 209 reported on which would grade 3. As can be seen, of the 159 animals 93 were in fact measured as 3's. The buyers correctly estimated about 58 percent of the yield grades of the 209 animals.

Inasmuch as yield grade is closely correlated with the yield of major boneless retail cuts in a beef carcass, inability to estimate this value accurately is a handicap to both the buyer and the seller of live

TABLE 4

Comparison Between Measured and Estimated Yield Grade for 209 Fed Cattle

Actual Yield Grade	Estimated Yield Grade 1	2	3	4	Total
1		3	4		7
2		[29]	44	1	74
3		12	[93]	1	106
4		4	17		21
5			1		1
Total		48	159	2	209

Estimated Correctly: Total Observations, 58.37%; Two's, 13.87%; Three's, 44.50%.

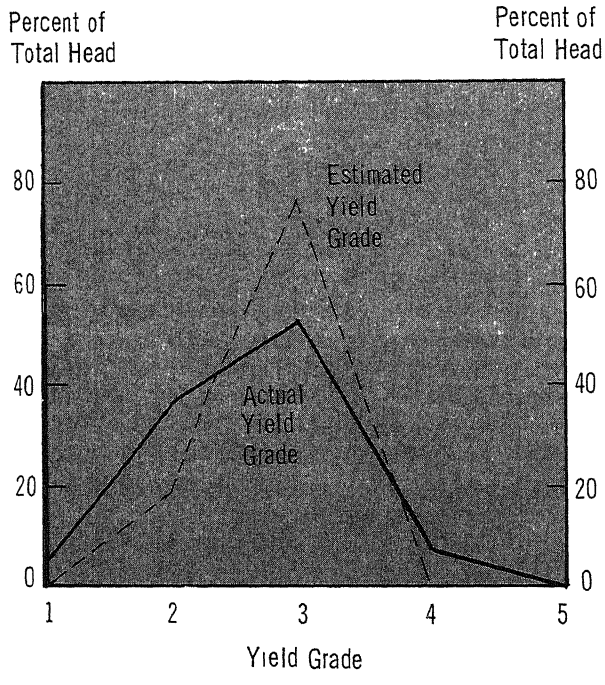
Source: "Comparison Between Buyers' Estimates of Live Cattle Yield Grades and Actual Carcass Performance," Paul R. Thomas, unpublished Ph.D. dissertation, O.S.U., June, 1967.

[4] *Official United States Standards for Grades of Carcass Beef*, Service and Regulatory Announcements C & MS 99, USDA, Reprinted, with Amendments, June, 1965.

[5] J. C. Pierce and D. K. Hallett, "Basis and Implementation of the Dual Beef Grading Concept," Proceedings Fourteenth Annual Reciprocal Meat Conference, University of Tennessee, Knoxville, Tennessee, June 19-22, 1961, p. 10.

CHART 3

Comparison Between Measured and Estimated Yield Grade for 209 Fed Cattle



Source: "Comparison Between Buyers' Estimates of Live Cattle Yield Grades and Actual Carcass Performance," Paul R. Thomas, unpublished Ph.D. dissertation, O.S.U., June, 1967.

cattle. Buyers need to know how much saleable product they are purchasing; and at the same time, producers of high yielding cattle want to be rewarded for a superior product.

These three sources of estimating error—dressing percentage, quality grade, and yield grade—are involved in the purchase of live animals, they help in motivating cattle feeders and cattle buyers to investigate the possibility of carcass weight and grade selling as a means toward greater precision in pricing. (Note: Additional information regarding buyers' estimates is presented in the Appendix.)

Although the selling of livestock on carcass weight and grade had its origin in the U. S. before World War II, until recently only a small portion of cattle were sold on that basis. Cattle sales by the carcass method had increased slowly until by 1967 some 355 packers handled more than 14 percent of their cattle purchases through this method.[6]

As a result of changes in the marketing patterns for fed cattle, managers of livestock markets are looking for ways that they can provide additional service to farmers to maintain position or attract a larger share of the business. They are searching for a marketing system that can offer increased precision in pricing while maintaining competition in pricing.

To encourage cattle producers to produce the low fat, high yielding product that consumers prefer, it is necessary to establish meaningful price differentials. The function of yield-price differentials is to provide a means of marketing on an actual value basis. To be effective, differentials must be significant; they must be more than token payments if they are to motivate cattle feeders to produce high yielding cattle.

It should be recognized that the total number of dollars spent for cattle will not be increased, but the dollars will be divided differently among cattlemen. The producer marketing high yielding cattle will be rewarded while the producer marketing an overfinished product will be penalized.

This experiment examined the feasibility of selling cattle on a carcass weight and grade basis while utilizing the auction market as the method of negotiating price. Many agencies and individuals were involved in planning this experiment. These included representatives of the Independent Livestock Marketing Association, the Lugbill Auction, cattle producers, the packing industry, the Federal and State Meat Inspection Service, Meat Grading Branch; Livestock Division C & MS, the Packers and Stockyards Agency, the Federal Extension Service, Extension economists of the Department of Agricultural Economics, The Ohio State University and other selected resource people.

[6] Packers and Stockyards Resume, Packers and Stockyards Administration, U.S.D.A., Washington, D. C., Volume VI, Number 10, November 8, 1968.

OBJECTIVES AND SALE PROCEDURES

The objectives of this experiment were:

1. To improve precision in the description of cattle by the use of carcass quality and yield grades, and also to improve the precision with which prices are determined through the setting up of quality and yield grade price differentials which reflect to the producer the differences in actual value of saleable meat marketed.

2. To increase operational efficiency in the handling of animals and carcasses in markets and slaughtering plants.

3. To examine the feasibility of selling cattle on a carcass weight and grade basis through the auction method of negotiating price.

4. To assist the industry (livestock producers, marketing firms, slaughterers, and retailers) in understanding the economic significance of USDA quality and yield grades.

Sale Procedure

Two experimental sales were held at the Lugbill Auction, Archbold, Ohio: the first on February 26, 1969, involved 116 cattle; the second on April 23, 1969, handled 206 head.

1. **Consignment**—Agents of the Cooperative Extension Service assisted market personnel in obtaining the needed consignments for the sales. Inasmuch as these sales were experimental, larger numbers of cattle were not desired and large numbers per consignor were not encouraged.

Upon arrival at the market all cattle were inspected by market personnel to determine if they qualified for the sale. Any animals showing bruises, staggy characteristics, or other defects would have been excluded from the sale.

It is anticipated that in the future a consignor will have the choice, upon arrival at the market, to request that his cattle be sold on the grade and yield basis or that they be sold, as they have been in the past, on the basis of live weight. Market personnel may provide the farmer with assistance in considering these alternatives.

2. **Identification**—After arriving at the market, all accepted cattle were identified by numbered metal tags, one placed in each ear. After slaughter, the tags were detached and identity transferred to the carcass by personnel of the federal and state meat inspection services. No problems in maintaining identity were experienced. To reduce time and expense in assuring the identity of live animals, Dave Hallett of the USDA Meat Grading Branch has suggested the use of two paper tags on the shoulders of each animal.

3. **Selling Procedure**—In the first experiment, all cattle were sold individually. Even though time was not considered an important factor, one hour and 35 minutes time was required in selling 116 head. During the second sale, about 53 percent of the 206 head were sold in lots of from 2 to 11 head. Selling of cattle in groups presented no major difficulty and increased the efficiency of the selling procedure compared with that used in the first sale.

4. **Bidding Procedure**—The bidding procedure varied somewhat for the two sales. For the first sale, when an animal entered the ring the auctioneer estimated the quality grade of the animal, and the live weight was displayed on an electric board above the auction box. An example of the bidding procedure was as follows. The auctioneer would say, "This is a Choice steer; what do you bid?" Bidding within a particular quality grade (USDA—Prime, Choice, Good) was done with the assumption that the yield grade of the animal would be 3 (Yield grades are 1, 2, 3, 4, 5). If a bid was then made, it was assumed that the bidder also recognized the animal as a Choice grade animal. All bidding was then done on the basis that the animal was of Choice grade. Assume, however, that when the auctioneer asked for a bid (after he had said, "This looks like a Choice steer") no bid was given; this indicated that no buyer agreed that it was a Choice animal. The auctioneer then would say, "This is a Good steer." If he then received a bid, all bidding was on the assumption that it was in fact a Good grade steer.

The addition of price to this example could result in the following: The auctioneer estimated a particular animal to be a Choice steer. He said, "What do you give for this Choice steer?," and the bidding was on a carcass basis. It may have started at 45 cents and sold at 47 cents. The 47-cent final bid would in this case have been the price that the buyer paid for a Choice 3 carcass. Upon slaughter, the actual quality and yield grade were determined and to the extent the carcass varied from the Choice 3 differential adjustments were made.

The second sale differed in that all bidding was conducted on a Choice 3 carcass basis without auctioneer or buyer estimates of quality grade. Quality and yield grade differential adjustments from Choice 3 were made at time of final grading according to actual carcass performance.

5. **Price Differentials for Grades**—Differentials used were also changed from the first sale to the second sale. Considerable discussion and study preceded establishing differentials for both quality and yield grades.

In arriving at quality grade differentials, current dressed beef price quotations from both the "yellow sheet" and the "USDA Market News" reports were used as references, with final determination of differ-

entials, the responsibility of the market manager. A main concern in establishing differentials was the difference between Good and Choice carcasses. It was recognized that many of the upper end of the Good carcasses are house graded by packing plants and sold as chain store cattle; frequently these cattle sell near the Choice carcass level. It was felt that to arrive at the differential between Choice and Good by going to the middle of the grades would result in too wide of a differential. Therefore, it was concluded that a differential value which went from the middle of the Choice grade to top of the Good would be more acceptable.

Quality grade differentials used in the first sale are shown in Table 5. Variances are presented from a Choice grade base. For example, if an animal had been bid on as "Choice" but the carcass grade was "Good" then $2 was deducted from the bid price. If bid on as "Good" and the carcass graded "Choice" then $2 was added to the bid price.

TABLE 5

Quality Grade Differentials, Lugbill Auction, Archbold, Ohio, February 26, and April 23, 1969

Grade	Differential from Choice Grade (Per Cwt) February 26 Sale	April 23 Sale
Prime	+ $ .50	+ $ .50
Choice	Base Price	Base Price
Good	— 2.00	— 3.00
Standard	— 4.00	— 6.00

Source: Original data.

From the February 26 sale to the April 23 sale, the fed cattle market strengthened considerably. Changes in the differentials for the second sale attempted to reflect growing demand, particularly for Choice cattle.

Yield differentials were established by the market manager after considerable discussion with personnel from the packing industry, the USDA, prospective consignors, the executive secretary of the ILMA, and Extension economists from The Ohio State University. Relevant USDA data concerning yield differentials was also reviewed. It was generally recognized that the actual value between yield grades was greater than $1.00 per hundredweight. However, in this first experiment this was the value acceptable by buyers. Values calculated by the Economic Research Service show that a difference of one yield grade can result in over a $4 per hundredweight difference in the retail sales value of a 600-pound Choice grade beef carcass. As shown in Table 6, the dollar value between yield grades changes as the overall price level of beef changes.

As stated earlier, all bidding varied by buyer estimates of quality grade with the assumption that yield grade would be 3. Depending on how the actual

TABLE 6

Yield Grades Retail Sales Value Comparisons in Dollars Per Cwt. for 600-Pound Choice Grade Beef Carcasses, Monthly 1968 and 1969

Year	Yield Grade (0/0)*			Value Difference Between Yield Grades**	
	2(77.4)	3(72.8)	4(68.2)	2 and 3	2 and 4
1968					
Jan.	69.16	65.55	61.94	3.61	7.22
Feb.	69.74	66.10	62.46	3.64	7.28
Mar.	70.08	66.42	62.76	3.66	7.32
Apr.	70.01	66.36	62.71	3.65	7.30
May	70.19	66.52	62.85	3.67	7.34
June	70.96	62.24	63.53	3.72	7.43
July	71.74	67.99	64.24	3.75	7.50
Aug.	72.30	68.52	64.74	3.78	7.56
Sept.	72.91	69.09	65.28	3.82	7.63
Oct.	72.34	68.54	64.74	3.80	7.60
Nov.	72.70	68.88	65.07	3.82	7.63
Dec.	72.98	69.15	65.32	3.83	7.66
1969					
Jan.	74.34	70.44	66.54	3.90	7.80
Feb.	74.35	70.44	66.52	3.91	7.83
Mar.	75.25	71.28	67.32	3.97	7.93
Apr.	77.10	73.04	68.98	4.06	8.12
May	80.36	76.14	71.91	4.22	8.45
June	83.79	79.34	74.94	4.40	8.80

* Percentage of carcass weight in retail cuts.

** These values reflect differences in the percentage of retail cuts and carcasses at the midpoint of Yield Grades 2, 3, and 4. Values are calculated from prices furnished to the Marketing Economics Division of the Economic Research Service by a large number of selected retailers throughout the country.

Source: Estimates published monthly in "Livestock, Meat, Wool Market Market News," Livestock Division, C & MS, USDA.

carcass yield grade varied from 3, adjustments were made to the carcass price bid. For example, if the carcass actually graded 3, then no adjustment was made for yield grade; however, if it graded 1, then $2 per hundredweight was added to the bid price. (Table 7)

TABLE 7

Yield Grade Differentials, Lugbill Auction, Archbold, Ohio, February 26, 1969

Grade	Differential from Yield Grade 3 (Per CWT)
1	+$2.00
2	+ 1.00
3	
4	— 1.00
5	— 2.00

Source: Original data.

Immediately preceding the beginning of the second sale, a meeting which included the market manager, Independent Livestock Marketing Associa-

tion personnel, prospective buyers, and Extension Service personnel established the differentials shown in Table 8.

TABLE 8

Yield Grade Differentials by Quality Grade and Yield Grade, Lugbill Auction, Archbold, Ohio, April 23, 1969

USDA Yield Grade	Prime or Choice	Quality Grade Good	Standard
	(Differential from Yield Grade 3)		
1	+$3.00	+$2.00	+$1.00
2	+ 1.50	+ 1.00	+ .50
3			
4	— 1.50	— 1.00	— .50
5	— 3.00	— 2.00	— 1.00

Source: Original data.

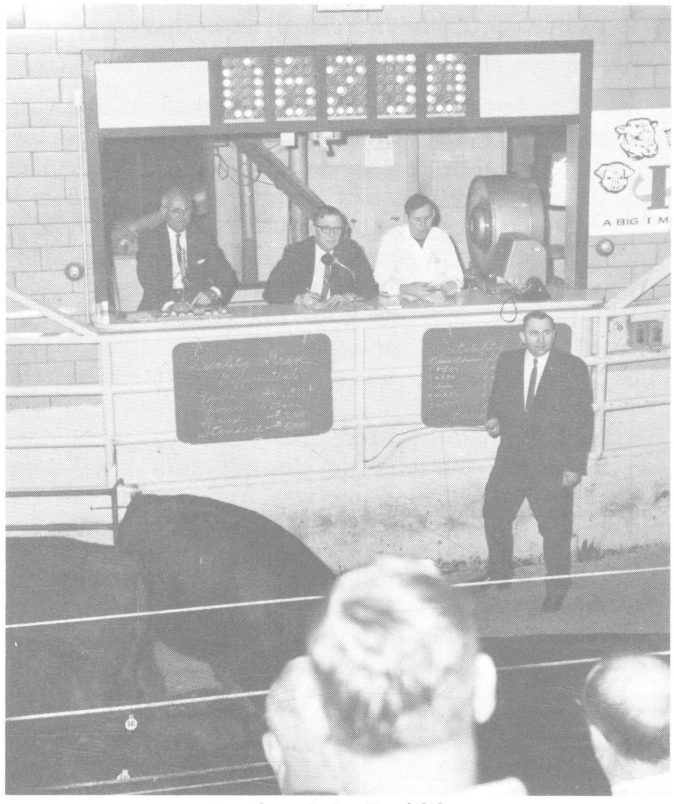
As noted in Table 8, the differential between yield grades is greater for carcasses of the quality grade of Prime and Choice than for Good and Standard. It would appear that this set of differentials reflected value not only for differences in yield but also value according to differing quality. Since differentials had previously been established for quality grades (Note Table 5), the above appears to be, in part, an additional adjustment for quality grade.

In discussing the establishment of these adjustments, buyers stated that the level of yield differentials was a matter of merchandising. As one buyer stated, "It's worth what you can get out of it." Buyers also stated that retailers would pay $1.50 more per hundredweight for a yield grade 2 carcass which was Choice but not that much more for a yield grade 2 carcass which was Good. Regardless of yield-of-cuts information, unless a carcass is a high Good or above, retail buyers were said to be reluctant to pay more.

(Note: It is the opinion of the authors and representatives of the Grading Branch of the USDA that separate differentials should be used for variance in yield grade. Quality grades identify the eating quality of beef—its flavor, juiciness, and tenderness. Another distinctly different aspect is the grading of beef according to its yield of boneless, closely trimmed, retail cuts from the high-value parts of the carcass—namely the round, loin, rib, and chuck. Thus, quality grade refers to the eating quality, whereas the yield grade reflects the amount of saleable product available for the retailer to place on the counter.)

The differentials for quality grades and yield grades were posted separately on the other side of the auction box in full view of the buyers. *(See Picture of Auction Box.)*

6. Payment—In accordance with Packers and Stockyards regulations, payment was made on the basis of hot carcass weight. A carcass was defined as the dressed sides of beef excluding the tail, but including the kidney. Carcass grades were determined upon slaughter by USDA graders, and adjustments in price were then made according to final quality and yield grades.



Auction Sale Facilities

At the time of sale, the market made partial payment to the sellers. To simplify the accounting procedure, the market arbitrarily paid a straight $235 per head. The remainder was paid by the market to the seller upon receiving from the packer the final data on carcass performance.

7. Time of Slaughter—In the planning and carrying out of these sales, it was agreed that cattle purchased would be slaughtered not later than the day following the sale.

It is recognized that requiring cattle to be slaughtered within this time period restricts the area from which buyers can be expected to participate. In future sales, if the specifications are broadened to include slaughterers from greater distances, the problems of tissue shrinkage must be considered. In this method of selling, where payment is made on the basis of hot carcass weight, the common issues of amount of fill and dressing percentage associated with selling on a live basis are no longer important factors. However, to the extent that tissue shrinkage may occur and affect carcass weight, then variance in the time span between time of sale and time of slaughter becomes an important factor to acknowledge in this system of selling. Little is known regarding to what extent the weight of the carcass will be affected as the interval between time of sale and

time of slaughter is increased and, therefore, this factor needs further study.

8. **Condemnations**—Cattle slaughtered were inspected by either a state or federal meat inspector. No condemnation losses or injuries from bruises were involved in either of the sales. However, according to the specifications of the sale, any losses due to condemnation or injuries due to bruises were to be the seller's responsibility. After the livestock was loaded for transportation to the packer, losses resulting from injury or death of the animal, *other than from bruises,* were to be assumed by the packer.[7]

The responsibility for bruises was discussed at length by all persons developing this marketing alternative. The following was extracted from the minutes of one of the discussions:

> The problem of condemnations and injury to the carcasses due to bruises will need careful consideration. If a carcass or a portion of the carcass is condemned due to disease, then this is a responsibility of the farmer; and an adjustment in payment will be made to take care of that. In a case of a bruise, however, it is more difficult to assume who is actually responsible. It is suggested that the carcass be examined by the meat inspectator. If it is determined that it is an old bruise, then the responsibility for the bruise must be assumed by the farmer. However, if the bruise appears to be rather recent, then it is likely that the packer will have to assume this responsibility. It is recognized that what is a new bruise and an old bruise may be difficult to determine and it is suggested that this area be given further study. (Discussion with Drs. Burke and Richardson, of the Federal and State Meat Inspection Service, respectively, indicated some reluctance on their part that meat inspectors should be charged with the responsibility of determining in effect who will pay for bruises and other injuries to carcasses.)

[7] Condemnation losses were to be certified by meat inspection and certification would be provided to the market upon request.

As stated previously, bruises were not a factor in either of these sales. Cattle feeders are concerned, however, that bruises which occur in the marketing channel—from the livestock market through the slaughtering process—not be the responsibility of the farmer. Further exploration of possible losses and responsibility of parties involved needs to be studied.

9. **Marketing Charges**—Charges used in these experimental sales were the same as those used in the regular auctions. Trucking from the market to the slaughtering plant was paid by the packer. The packer also paid the cost of grading and related expenses. The carcass weight, quality grade, and yield grade were provided to the seller by the market at the time of final settlement.

The market manager, Charles Lugbill, stated that some additional accounting was required in the office; however, it was less than expected. At the time, Mr. Lugbill was satisfied that some efficiencies were evident in the handling of the livestock, particularly in time spent through the selling of groups.

REPORT ON SALES

A total of 322 cattle were sold at two auctions where bidding was conducted on a carcass basis. Adjustments were made according to the actual USDA quality and yield grade of the carcass in the packing plant. No major problems were experienced in conducting this type of sale. Maintenance of identification of animals presented no problem. No bruises were involved in the moving of cattle from farm through the auction, and on to slaughter.

In the first sale, all cattle were sold individually. During the second sale about 53 percent of the 206 head were sold in lots of from 2 to 11 head; however, comingling, (grouping of cattle from different consignors) was not used. The bidding procedure was also changed after the first sale. Instead of the auctioneer estimating the quality of the cattle, all bidding in the second sale was on a Choice 3 base. The range of prices paid within a particular quality and yield grade was wider than expected. For example there was a $4 per hundredweight range in the bid price for the Choice 3 grade. The main reason given for the range of prices bid was the lack of experience of buyers in this type of sale and lack of knowledge regarding yield grades.

Carcass performance of the 322 cattle which were sold through the two auctions is presented in Table 9. Over 75 percent of the cattle sold in the first sale were USDA Choice, while slightly over 63 percent of the cattle in the second sale were Choice. Conversely, the first sale had fewer Good grade cattle than did the second sale—12 percent to 28 percent, respectively An obvious conclusion is that the quality grade

TABLE 9

Distribution of Carcasses by Grade (USDA) Steers Marketed Through Lugbill Auction

USDA Yield Grade	February 26, 1969 Number of Head	Percent	April 23, 1969 Number of Head	Percent
P-2	2	1.72	0	
P-3	8	6.90	10	4.9
P-4	2	1.72	7	3.4
P-5	1	.86	1	.5
C-2	16	13.80	33	16.0
C-3	51	43.97	66	32.0
C-4	21	18.10	28	13.6
C-5	1	.86	3	1.5
G-1	0	0	2	1.0
G-2	5	4.31	26	12.6
G-3	8	6.90	29	14.0
G-4	1	.86	1	.5
TOTAL	116	100.00	206	100.0

Source: Original data.

of cattle in the first sale was higher than in the second.

While the quality grade was higher in the first sale, the yield grade was lower. As seen in Table 10, at the second sale over 80 percent of the carcasses graded 3 or better in yield compared with 77.6 percent in the first sale. This relationship appears logical if we recognize that generally as quality is higher

TABLE 10

Yield Grade Distribution for Steers Marketed Through the Lugbill Auction by Sale

USDA Yield Grade	February 26, 1969 Number of Head	Percent	April 23, 1969 Number of Head	Percent
1			2	1.0
2	23	19.8	59	28.6
3	67	57.8	105	51.0
4	24	20.7	34	17.5
5	2	1.7	4	1.9
TOTAL	116	100.0	206	100.0

Source: Original data.

the amount of finish is likely to increase, and the yield grade thus decrease. Table 11, which represents data from USDA Yield Graded Beef, confirms the above statement.

Table 12 presents data of comparison of carcass and live price for the steers sold at the first auction. There was a greater range in the selling price than was expected. This may have been due to lack of experience of buyers with this method of sale. The first column indicated that Prime 3 had a narrow range, only 25 cents. While in the Choice 3's range of $4 per hundredweight was recorded. Good 3's showed a range of $2.50. The second column shows

TABLE 11

Beef—Yield Graded by the U. S. Department of Agriculture, April 6-May 3, 1969

Quality Grade	Yield Grade 1	2	3	4	5	Total
	Thousand pounds					
Prime	36	2,557	7,057	288	26	9,963
Choice	706	60,626	100,677	1,617	114	163,740
Good	1,029	10,968	4,243	29	2	16,270
Standard	15	108	9	...	...	132
Commercial	...	12	15	2	3	32
Utility	...	38	19	...	...	57
Cutter	...	...	...	...	...	...
Canner	...	...	...	...	...	...
Not quality graded	421	13,646	13,102	414	17	27,599
TOTAL	2,207	87,953	125,122	2,350	162	217,794

Source: Livestock Market News, USDA.

TABLE 12

Comparison of Carcass and Live Price for 116 Steers, Lugbill Auction, February 26, 1969

Grade	Range in Selling Price by Selling Grade	Average Adjusted Carcass Price	Range Adjusted Carcass Price	Average Live Price	Range
P-2		$48.63	$48.50-48.75	$29.80	$29.56-30.04
P-3	$47.00-47.25	47.00	46.00-47.75	29.35	28.44-31.16
P-4		46.00	46.00	28.31	28.13-28.49
P-5		45.00	1 carcass	29.48	1 carcass
C-2		46.55	45.25-47.25	28.66	26.76-31.85
C-3	43.75-47.75	45.62	43.25-47.75	28.27	25.97-30.83
C-4		45.48	44.25-46.50	28.35	26.97-30.32
C-5		43.50	1 carcass	26.51	1 carcass
G-2		44.60	44.00-45.00	27.57	26.45-29.43
G-3	41.00-43.50	42.97	41.00-44.75	27.02	24.86-28.60
G-4		42.00	1 carcass	26.77	1 carcass
G-5	.....	.....	.....	.....	.....
All Grades		$45.68		$28.31	

Source: Original data.

the average adjusted carcass price by grades (it can be noted here that in all cases the higher the yield grade the higher the price—price declined as the yield grade declined). Prices ranged from $48.63 to $45 with the Prime grade; from $46.55 to $43.50 in the Choice grade, and from $44.60 to $42 in the Good grade. This could be expected as there is more saleable meat and less trim loss on the retail level from the higher yield grades than from the lower grades.

The range of the adjusted carcass price in the third column shows that the Choice 3's range remained the same, while the Prime 3's increased in their range of $1.75. The Good 3's had a range of $3.75. Factors which influenced the range in adjusted carcass price included the adjustment from estimated selling grade to the actual grade, the difference in weights of carcasses within the same grade, and inexperience of buyers with this type of sale.

Columns four and five show the average live price and range in price as converted from the actual selling prices. This was found by taking the total value of each carcass and dividing it by the live weight of the animal at sale time.

After the sale results were summarized, a meeting was held with both buyers and sellers to evaluate the sale. The consignors indicated a belief that while some of the cattle sold high enough, other cattle would have probably brought more money if they had been sold by some other method. The buyers said they were somewhat confused at first in buying cattle this way; they believed that if another sale were held there would not be as great a margin within a grade as there was in this sale. They indicated that they would be interested in participating in another such sale.

The second demonstrational sale was held at Lugbill's on April 23, 1969, at which time 206 steers were sold. Several changes in the procedure were adopted for this sale: (1) All cattle were sold on a Choice 3 grade basis, and (2) cattle were sold in groups wherever it was possible to sort out a pen of cattle from one consignor so that they would be quite uniform in weight, quality, and yield grade. (3) Another change made was in the differentials used for quality and yield grade. The buyers felt that in the Prime and Choice grades they could obtain a greater differential in the carcasses according to a cutability grade, while in the Good and Standard grades they would not be able to get as great a differential. (See Table 8.)

The distribution of carcasses by quality and yield grade combined at this sale was not consistent with the first sale. Referring to Table 9 of the 18 carcasses grading prime; 7 were yield graded 4, 1 was number 5, with no carcasses yield grading 1 or 2. In the Choice grade, there were 33 grading 2, 66 grading 3, 28 grading 4, and 3 grading 5. In the Good grade there there were 2 grading 1 in yield, 26 at 2, 29 at 3, and 1 grading 4. One of the greatest differences between the first and second sale was the percentage

TABLE 13

Carcass Prices for 206 Steers, Lugbill Auction April 23, 1969

Grade	Range in Selling Price by Final Carcass Grade*	Average Adjusted Carcass Price	Range in Adjusted Carcass Price
P-3	$48.50-50.10	$49.77	$49.00-50.60
P-4	48.75-49.50	48.02	47.75-48.50
P-5	48.80	46.30	1 carcass
C-2	48.25-50.10	50.63	49.75-51.60
C-3	48.25-50.10	49.14	48.25-40.10
C-4	48.50-50.00	47.51	47.00-48.50
C-5	48.50-48.60	45.57	45.50-45.60
G-1	48.50-48.50	47.50	47.50-47.50
G-2	48.00-50.00	46.86	46.00-48.00
G-3	48.25-49.75	46.03	45.25-46.10
G-4	49.00	45.00	1 carcass
All Grades	$48.00-50.10	$48.32	$45.00-51.60

* All Bidding in a Choice 3 basis.
Source: Original data.

of the total which fell into the Choice 3 grade. The first sale had about 44 percent of the Choice 3 compared to only 32 percent in the second sale. The greater percent of the total in the first sale went into the Choice grade.

The range in prices by quality and yield grades was narrowed in the second than in the first (note Tables 12 and 13). For example, in the Choice 3 grade there was a range of $4.50 in the adjusted carcass price in the first sale, while in the second sale the range was only a $1.85 in the adjusted selling price. Other grades also showed that the range in price had been narrowed.

Table 17, in the Appendix, shows the complete carcass data on all of the cattle sold at the second sale.

The official USDA grade is shown, and the data relates how quality and yield adjustments affect the adjusted carcass price and the total value of the carcass.

APPENDIX

BUYER ACCURACY IN ESTIMATING CARCASS MERITS OR CATTLE

In the past, it has been a common belief by many people that experienced cattle buyers could look at live animals and tell with a high degree of accuracy how much that animal's carcass would yield and what the carcass would grade. On a large number of cattle, buyers making estimates on dressing percentage tend to average out. An individual buyer may have some of them too high, and some of them too low. From an individual producer's standpoint this method could be desirable, providing his cattle were ones that the buyer estimated too high. If, however, the cattle were estimated too low, then this is undesirable. Looking at the packer's viewpoint, his buyer must average out (or possibly be somewhat low when buying cattle) otherwise, the packer will lose money, and his competitors who are doing a better job will force him out of business.

In order to supplement other research data relative to a buyer's ability to make estimates, of dressing percent, and grade, a survey was conducted with the buyers attending the auction at Archbold on February 26, 1969. A record sheet was prepared that assisted buyers in reaching their estimates. As individual cattle came into the ring, buyers recorded the tag number of the animal, estimated the dressing percentage, and then checked the quality grade and the yield grade they estimated the carcass from this animal would produce. Making these estimates should not have created any unusual problem for the buyers, since they normally, at least mentally, go through this procedure when buying cattle on a live weight basis at auction or any other method. The dressing percentage estimates were made on a hot-carcass weight basis. Table 14 shows the results of the estimates made on dressing percentage compared to the actual dressing percentage found by the packer. Looking at the estimates made by Buyer #1, we find he estimated 2 cattle would dress between 57 and 57.50 percent; 6 cattle that would dress from 58 to 58.50 percent, and then the majority would dress between 58.50 and 60.99 percent. One animal was expected to dress between 62 and 62.50 percent.

The estimates of Buyer #2 were almost the same as Buyer #1; however, he was somewhat more conservative. The third column shows that Buyer #3 was more optimistic, expecting more cattle to dress higher than the first two buyers. Buyer #4's estimates were nearly the same as those of Buyers #1 and #2.

The actual results had revealed only one head that dressed between 58.50 and 58.99 percent, with the majority of the cattle dressing between 61 and 62.50 percent. The difference between the estimates of the buyers and the actual results is of economic importance. If, on the average, the error

TABLE 14

Comparison Between Actual and Estimated Dressing Percentage by Buyer for 116 Fed Cattle, Archbold February 26, 1969

Estimates of Dressing Percentage	Buyer #1		Buyer #2		Buyer #3		Buyer #4		Actual	
	Number of Head	Percent	Number of Head	Percent	Number of Head	Percent	Number of Head	Percent	Number of Head	Percent
56.50-56.99							1	0.9		
57.00-57.49	2	1.7	2	1.7			2	1.7		
57.50-57.99	0	0	1	0.9	3	2.6	2	1.7		
58.00-58.49	6	5.2	12	10.3	10	8.6	12	10.3		
58.50-58.99	10	8.6	10	8.6	5	4.3	8	6.9	1	0.9
59.00-59.49	28	24.0	24	20.7	11	9.5	20	17.3	5	4.3
59.50-59.99	26	22.4	32	27.5	16	13.8	13	11.2	2	1.7
60.00-60.49	17	14.7	19	16.4	26	22.4	21	18.1	9	7.8
60.50-60.99	18	15.5	5	4.3	10	8.6	11	9.5	9	7.8
61.00-61.49	6	5.2	9	7.8	11	9.5	13	11.2	15	12.9
61.50-61.99	1	0.9	1	0.9	11	9.5	5	4.3	21	18.0
62.00-62.49	1	0.9			10	8.6	8	6.9	15	12.9
62.50-62.99					1	0.9			9	7.8
63.00-63.49					2	1.7			9	7.8
63.50-63.99									7	6.1
64.00-64.49									4	3.4
64.50-64.99									2	1.7
65.00-65.49									4	3.4
65.50-65.99									3	2.6
66.00-66.49									0	0
66.50-66.99									0	0
67.00-67.49									1	0.9
No Answer	1	0.9	1	0.9						
Total	116	100.0	116	100.0	116	100.0	116	100.0	116	100.0

Source: Original data.

amounted to 2 percent on a 1,000-pound steer, this would be 20 pounds. When carcasses are selling at $50 per hundredweight, this is a $10 error made on dressing percentage alone. It may be noted that all buyers had a tendency to estimate the dressing percentage lower than the actual.

Table 15 gives the comparison between the actual and the estimated carcass quality grade for 113 head that were estimated by the buyers. This table is divided into four parts, one part for each buyer. Buyer #1 (top of the table), estimated there would be one Prime carcass and was correct. It should also be noted, as shown in the last column, there were actually 13 Prime carcasses. Column 2 shows that he estimated there would be 69 Choice carcasses. Of the 69 he estimated would be Choice, he was correct in 55 of the cases. The last column shows there were actually 86 Choice carcasses. The buyers' estimates indicated there would be 43 Good carcasses. Concerning the ones he estimated would be Good, he was right in 11 cases. In total, there were 14 Good carcasses. Of the others that he estimated would be Good, 31 resulted in choice carcasses and 1 was Prime.

The second part of the table presents data for Buyer #2, who indicated there would be 3 Prime carcasses. He was correct on one of these 3. He estimated there would be 76 Choice, and he had 60 of them correct. Eleven of the others estimated as Choice were prime and 5 were Good. Whereas he estimated 34 as good, only 9 of them actually graded Good. The other 24 were Choice, and 1 was Prime. It can be observed that the estimates given by Buyers #3 and #4 were similar to those of Buyers #1 and #2. The inability of buyers to estimate correctly quality grade is evident.

In estimating yield grades, only three of the buyers recorded their estimates. Table 16 shows the comparison between measured and estimated yield grade of the 113 cattle sold at this auction. Buyer #1 estimated there would be no carcasses that would have a yield grade of 1. There were none. He estimated, however, there would be 48 with the yield grade of 2. He was correct in only 11 cases. (Square around number indicates number estimated correctly.) He estimated there would be 65 3's, and 37 of these animals had a 3 grade. He estimated there would be no 4's no 5's; however, there were 23 4's and 2 of yield grade 5.

It can be readily observed that all of these buyers, when estimating the yield grade, had a tendency to overestimate and place too many in the higher yield grades. In some cases this might be attributed to their lack of experience in working with yield grades.

TABLE 15

Comparison Between Actual and Estimated Carcass Grade for 113 Fed Cattle, Archbold, Feb. 26, 1969 Classified by U. S. Carcass Grades

Actual Federal Grade	Buyer #1—Estimated Federal Grade			
	Prime	Choice	Good	Total
Prime	[1]	11	1	13
Choice	0	[55]	31	86
Good	0	3	[11]	14
Total	1	69	43	113

Actual Federal Grade	Buyer #2—Estimated Federal Grade			
	Prime	Choice	Good	Total
Prime	[1]	11	1	13
Choice	2	[60]	24	86
Good	0	5	[9]	14
Total	3	76	34	113

Actual Federal Grade	Buyer #3—Estimated Federal Grade			
	Prime	Choice	Good	Total
Prime	[0]	10	3	13
Choice	1	[54]	31	86
Good	0	5	[9]	14
Total	1	69	43	113

Actual Federal Grade	Buyer #4—Estimated Federal Grade			
	Prime	Choice	Good	Total
Prime	[1]	12	0	13
Choice	0	[77]	9	86
Good	0	8	[6]	14
Total	1	97	15	113

Source: Original data.

TABLE 16

Comparison Between Measured and Estimated Yield Grade for 113 Fed Cattle

Actual Yield Grade	Buyer #1—Estimated Yield Grade					
	1	2	3	4	5	Total
1	0	0	0	0	0	0
2	0	[11]	11	0	0	22
3	0	29	[37]	0	0	66
4	0	8	15	[0]	0	23
5	0	0	2	0	[0]	2
Total	0	48	65	0	0	113

Actual Yield Grade	Buyer #2—Estimated Yield Grade					
	1	2	3	4	5	Total
1	0	0	0	0	0	0
2	2	[10]	10	0	0	22
3	1	15	[48]	2	0	66
4	0	6	17	[0]	0	23
5	0	0	1	1	[0]	2
Total	3	31	76	3	0	113

Actual Yield Grade	Buyer #3—Estimated Yield Grade					
	1	2	3	4	5	Total
1	0	0	0	0	0	0
2	0	[18]	4	0	0	22
3	0	40	[24]	1	1	66
4	0	15	8	[0]	0	23
5	0	0	2	0	[0]	2
Total	0	73	38	1	1	113

Source: Original data.

TABLE 17

Carcass Data on 206 Head of Cattle Sold at Auction at Archbold, Ohio—April 23, 1969

Consignors Tag Number	Weight Live	Weight Carcass	Actual Dressing Percent	Official USDA Grade	Auction Grade	Carcass Price	Quality Adjustment	Yield Adjustment	Adjusted Carcass Price	Gross Carcass Value	Converted Live Price/cwt.
401	1040	676	65.0	C-3	C-3	$49 50			$49.50	$334.62	$32.18
402	1015	655	64.5	C-3	C-3	48.75			48.75	319.31	31.46
403	1065	622	58.4	G-3	C-3	48.50	—3.00		45.50	283.01	26.57
404	1085	652	60.1	G-3	C-3	49.00	—3.00		46 00	299.92	27.64
405	1025	658	64.2	C-3	C-3	48.75			48.75	320.77	31.29
406	950	600	63.2	C-2	C-3	49.00		+1.50	50.50	303.00	31.89
407	1055	689	65.3	C-3	C-3	49 00			49.00	337.61	32.00
408	925	606	65.5	C-3	C-3	49.75			49.75	301.48	32.59
409	960	607	63.2	G-3	C-3	49.00	—3.00		46 00	279.22	29.09
410	1135	724	63.8	G-3	C-3	49.00	—3.00		46.00	333.04	29.34
411	985	615	62.4	C-4	C-3	48.50		—1.50	47.00	289.05	29.35
412	1120	688	61.4	C-3	C-3	49.50			49.50	340.56	30.41
413	1030	640	62.1	C-3	C-3	49.00			49.00	313.60	30.45
414	1045	628	60.1	P-3	C-3	49.00	+ .50		49.50	310.86	29.75
415	1110	660	59.5	C-3	C-3	48.75			48.75	321.75	28.99
416	1005	617	61.4	G-3	C-3	49.00	—3.00		46.00	283.82	28.24
417	1000	616	61.6	C-4	C-3	48.50		—1.50	47.00	289.52	28.95
418	1095	658	60.1	C-3	C-3	48.50			48.50	319.13	29.14
419	1010	596	59.0	C-3	C-3	48.50			48.50	289.06	28.62
420	1040	652	62.7	C-3	C-3	49.50			49.50	322.74	31.03
421	1020	614	60.2	C-2	C-3	48.50		+1.50	50.00	307.00	30.10
422	970	595	61.3	C-2	C-3	49.00		+1.50	50.50	300.48	30.98
423	1010	620	61.4	G-3	C-3	49.00	—3.00		46.00	285.20	28.24
424	1030	614	59.6	C-2	C-3	48.25		+1.50	49.75	305.47	29.66
425	855	490	57.3	G-2	C-3	48.50	—3.00	+1.00	46.50	227.85	26.65
426	1025	634	61.9	G-2	C-3	48.00	—3.00	+1.00	46.00	291.64	28.45
427	1035	625	60.4	C-2	C-3	49.00		+1.50	50.50	315.62	30.49
428	800	484	60.5	G-2	C-3	48.50	—3.00	+1.00	46.50	225.06	28.13
429	830	501	60.4	G-2	C-3	48.00	—3.00	+1.00	46.00	230.46	27.77
430	1125	683	60.7	C-2	C-3	48.50		+1.50	50.00	341.50	30.36
431	1025	626	61.1	G-3	C-3	49.00	—3.00		46.00	287.96	28.09
432	890	553	62.1	G-2	C-3	48.50	—3.00	+1.00	46.50	257.14	28.89
433	1000	633	63.3	G-2	C-3	48.75	—3.00	+1.00	46.75	295.93	29.59
434	1080	684	63.3	G-2	C-3	49.75	—3.00	+1.00	47.75	326.61	30.24
435	855	530	62.0	G-2	C-3	49.00	—3.00	+1.00	47.00	249.10	29.13
436	910	562	61.8	G-1	C-3	48.50	—3.00	+2.00	47.50	266.95	29.34
437	1080	694	64.3	G-2	C-3	50.00	—3.00	+1.00	48.00	333.12	30.84
438	825	504	61.1	G-2	C-3	48.00	—3.00	+1.00	46.00	231.84	28.10
439	1035	630	60.9	G-2	C-3	48.75	—3.00	+1.00	46.75	294.53	28.46
440	880	528	60.0	C-2	C-3	48.75		+1.50	50.25	265.32	30.15
441	1045	602	57.6	G-2	C-3	48.75	—3.00	+1.00	46.75	281.44	26.93
442	1125	682	60.6	C-3	C-3	49.00			49.00	334.18	29.70
443	990	614	62.0	G-3	C-3	49.25	—3.00		46.25	283.98	28.68
444	1055	672	63.7	C-4	C-3	49.25		—1.50	47.75	320.88	30.42
445	1070	674	63.0	C-4	C-3	48.75		—1.50	47.25	318.46	29.76
446	985	620	62.9	C-3	C-3	49.25			49.25	305.35	31.00
447	1095	681	62.2	C-2	C-3	49.00		+1.50	50.50	343.90	31.41
448	1080	686	63.5	G-3	C-3	49.25	—3.00		46.25	317.28	29.38
449	1085	723	66.6	C-4	C-3	49.00		—1.50	47.50	343.42	31.65
450	1075	662	61.6	C-3	C-3	49.00			49.00	324.38	30.17
451	1150	737	64.1	C-3	C-3	48.75			48.75	359.29	31.24
452	800	508	63.5	Heifers	Heifers	45.50			45.50	231.14	28.89
453	705	416	59.0	Heifers	Heifers	44.00			44.00	183.04	25.96
454	835	520	62.3	Heifers	Heifers	44.00			44.00	228.80	27.40
455	995	610	61.3	Heifers	Heifers	45.00			45.00	274.50	27.59
456	910	567	62.3	Heifers	Heifers	44.50			44.50	252.33	27.73
457	1060	678	64.0	Heifers	Heifers	44.50			44.50	301.71	28.46
458		798		C-3	C-3	48.80			48.80	389.42	
459		794		P-4	C-3	48.80	+ .50	—1.50	47.80	379.53	
460		728		P-3	C-3	48.80	+ .50		49.30	358.90	
461		828	Ave.	C-4	C-3	48.80		—1.50	47.30	391.64	Ave.

TABLE 17—Continued

Carcass Data on 206 Head of Cattle Sold at Auction at Archbold, Ohio—April 23, 1969

Consignors Tag Number	Weight Live	Weight Carcass	Actual Dressing Percent	Official USDA Grade	Auction Grade	Carcass Price	Quality Adjustment	Yield Adjustment	Adjusted Carcass Price	Gross Carcass Value	Converted Live Price/cwt.
462		684		C-3	C-3	48.80			48.80	333.79	
463		718	62.5	P-4	C-3	48.80	+ .50	—1.50	47.80	343.20	30.14
464		666		P-3	C-3	48.80	+ .50		49.30	328.34	
465		744		P-4	C-3	48.80	+ .50	—1.50	47.80	355.63	
466		734		P-3	C-3	48.80	+ .50		49.30	361.86	
467		824		P-5	C-3	48.80	+ .50	—3.00	46.30	381.51	
468		732		C-3	C-3	48.80			48.80	357.22	
469		766		P-4	C-3	49.05	+ .50	—1.50	48.05	368.06	
470		694		C-4	C-3	49.05		—1.50	47.55	329.99	Ave.
471		708	Ave.	C-4	C-3	49.05		—1.50	47.55	336.65	
472		718		C-4	C-3	49.05		—1.50	47.55	341.40	29.51
473		752	61.4	C-4	C-3	49.05		—1.50	47.55	357.57	
474		713	Ave.	C-2	C-3	49.05		+1.50	50.55	360.42	Ave.
475		682	61.4	C-4	C-3	49.05		—1.50	47.55	324.29	29.51
481		634		C-3	C-3	49.15			49.15	311.61	
482		676		C-3	C-3	49.15			49.15	332.25	
483		650	Ave.	C-4	C-3	49.15		—1.50	47.65	309.73	Ave.
484		656		C-4	C-3	49.15		—1.50	47.65	312.58	
485		648	61.3	C-4	C-3	49.15		—1.50	47.65	308.77	29.62
486		660		C-4	C-3	49.15		—1.50	47.65	314.49	
487		630		C-3	C-3	49.15			49.15	309.65	
488		646		C-4	C-3	49.25		—1.50	47.75	308.47	
489		615	Ave.	C-3	C-3	49.25			49.25	302.89	Ave.
490		701		C-3	C-3	49.25			49.25	345.24	
491		653	62.0	C-4	C-3	49.25		—1.50	47.75	311.81	28.53
492		659		C-3	C-3	49.25			49.25	324.56	
493		700		C-4	C-3	49.25		—1.50	47.75	334.25	
494		780		C-4	C-3	48.60		—1.50	47.10	367.38	
495		797	Ave.	C-4	C-3	48.60		—1.50	47.10	375.38	Ave.
496		755	61.6	C-5	C-3	48.60		—3.00	45.60	344.28	28.65
497		771		C-5	C-3	48.60		—3.00	45.60	351.57	
498		757		C-4	C-3	48.60		—1.50	47.10	356.54	
817		574		C-2	C-3	49.65		+1.50	51.15	293.60	
818		590	Ave.	C-2	C-3	49.65		+1.50	51.15	301.78	Ave.
819		612	61.2	C-3	C-3	49.65			49.65	303.86	31.08
820		581		C-2	C-3	49.65		+1.50	51.15	297.18	
821	910	576	63.3	G-3	C-3	49.25	—3.00		46.25	266.40	29.27
822	905	566	62.5	G-3	C-3	49.50	—3.00		46.50	263.19	29.08
823	795	483	60.8	C-2	C-3	49.00		+1.50	50.50	243.91	30.68
824	895	532	59.4	C-3	C-3	48.50			48.50	258.02	28.83
825	910	546	60.0	C-3	C-3	48.25			48.25	263.45	28.95
826	990	607	61.3	C-2	C-3	49.50		+1.50	51.00	309.57	31.27
827	805	510	63.4	C-3	C-3	49.00			49.00	249.90	31.04
828		697		C-3	C-3	49.00			49.00	341.53	
829		677	Ave.	P-3	C-3	49.00	+ .50		49.50	335.12	
830		716	60.6	C-3	C-3	49.00			49.00	350.84	29.33
831		655		G-3	C-3	49.00	—3.00		46.00	301.30	
838		612	Ave.	P-4	C-3	49.45	+ .50	—1.50	48.45	296.51	
839		605	65.4	P-3	C-3	49.45	+ .50		49.95	302.20	32.19
832	1215	757	62.3	C-3	C-3	48.25			48.25	365.26	30.06
833	1095	662	60.5	C-3	C-3	48.25			48.25	319.41	29.17
834	1180	782	66.3	C-4	C-3	48.75		—1.50	47.25	369.50	31.3
835	1125	680	60.4	C-4	C-3	49.00		—1.50	47.50	323.00	28.7
836	1125	717	63.7	G-2	C-3	48.00	—3.00	+1.00	46.00	329.82	29.3
837	1195	777	65.0	C-3	C-3	48.50			48.50	376.84	31.5
909		608		P-3	C-3	50.10	+ .50		50.60	307.65	
910		701		P-3	C-3	50.10	+ .50		50.60	354.71	
911		615	Ave.	P-3	C-3	50.10	+ .50		50.60	311.19	Ave.
912		645		C-2	C-3	50.10		+1.50	51.60	332.82	
913		620	63.6	C-3	C-3	50.10			50.10	310.62	32.15
914		654		C-3	C-3	50.10			50.10	327.65	

TABLE 17—Continued

Carcass Data on 206 Head of Cattle Sold at Auction at Archbold, Ohio—April 23, 1969

Consignors Tag Number	Weight Live	Weight Carcass	Actual Dressing Percent	Official USDA Grade	Auction Grade	Carcass Price	Quality Adjustment	Yield Adjustment	Adjusted Carcass Price	Gross Carcass Value	Converted Live Price/cwt.
915		658		C-3	C-3	50.10			50.10	329.66	
916		675		C-3	C-3	49.50			49.50	334.12	
917		670	Ave.	C-2	C-3	49.50		+1.50	51.00	341.70	Ave.
918		717		C-3	C-3	49.50			49.50	354.91	
919		694	63.4	C-2	C-3	49.50		+1.50	51.00	353.94	31.75
920		637		C-3	C-3	49.50			49.50	315.31	
921		585		C-3	C-3	49.50			49.50	289.57	
922		607	Ave.	C-3	C-3	49.50			49.50	300.46	Ave.
923		598	63.5	C-3	C-3	49.50			49.50	296.01	31.45
924		637		C-3	C-3	49.50			49.50	315.31	
926	970	617	63.6	P-4	C-3	49.50	+ .50	—1.50	48.50	299.25	30.85
927	1215	742	61.1	G-2	C-3	48.75	—3.00	+1.00	46.75	346.87	28.55
928	815	501	61.5	C-2	C-3	49.50		+1.50	51.00	255.51	31.35
929	915	576	63.0	C-2	C-3	48.75		+1.50	50.25	289.44	31.63
930	855	535	62.6	C-4	C-3	49.50		—1.50	48.00	256.80	30.04
931	1145	707	61.7	C-3	C-3	49.50			49.50	349.96	30.56
932	880	527	59.9	Stag		44.50			44.50	234.52	26.65
933		652	Ave.	C-2	C-3	49.70		+1.50	51.20	333.82	Ave.
934		766	61.7	G-2	C-3	49.70	—3.00	+1.00	47.70	365.38	30.12
935		634		G-2	C-3	49.70	—3.00	+1.00	47.70	302.42	
936		690		C-3	C-3	49.75			49.75	343.28	
937		629	Ave.	C-3	C-3	49.75			49.75	339.30	30.8
938		635		G-3	C-3	49.75	—3.00		46.75	296.86	
939		682	62.6	C-3	C-3	49.75			49.75	339.30	
940		641		C-3	C-3	49.75			49.75	318.90	
941		624		C-3	C-3	49.75			49.75	310.44	
901	1115	704	63.1	G-3	C-3	49.00	—3.00		46.00	323.84	29.04
902	1210	725	59.9	C-5	C-3	48.50		—3.00	45.50	329.88	27.26
903	1210	775	64.0	C-3	C-3	48.50			48.50	375.87	31.06
904	1375	851	61.9	P-4	C-3	48.75	+ .50	—1.50	47.75	406.35	29.55
905	1150	733	63.7	C-2	C-3	49.25		+1.50	50.75	372.00	32.35
906	1400	876	62.6	G-3	C-3	48.25	—3.00		45.25	396.39	28.31
907	1000	644	64.4	C-4	C-3	50.00		—1.50	48.50	312.34	31.23
908	1235	753	61.0	P-3	C-3	48.50	+ .50		49.00	368.97	29.88
942	1110	662	59.6	C-3	C-3	49.00			49.00	324.38	29.22
943	1230	769	62.5	C-3	C-3	49.00			49.00	376.81	30.63
944	1080	658	60.9	C-3	C-3	48.75			48.75	320.78	29.70
945	1135	694	61.1	G-3	C-3	48.75	—3.00		45.75	317.50	27.97
946	990	604	61.0	C-3	C-3	48.75			48.75	294.45	29.74
947	1065	648	60.8	C-3	C-3	48.75			48.75	315.90	29.66
948	1030	624	60.6	C-2	C-3	49.25		+1.50	50.75	316.68	30.75
949	950	594	62.5	G-1	C-3	48.50	—3.00	+2.00	47.50	282.15	29.70
950	855	524	61.3	Heifer		45.25			45.25	237.11	27.73
951		640		C-3	C-3	49.00			49.00	313.60	
952		658		G-4	C-3	49.00	—3.00	—1.00	45.00	296.10	
953		684		G-3	C-3	49.00	—3.00		46.00	314.64	
954		570	Ave.	G-3	C-3	49.00	—3.00		46.00	262.20	Ave.
955		656		G-2	C-3	49.00	—3.00	+1.00	47.00	308.32	
956		580	61.6	C-3	C-3	49.00			49.00	284.20	28.74
957		602		G-2	C-3	49.00	—3.00	+1.00	47.00	282.94	
958		596		G-3	C-3	49.00	—3.00		46.00	724.16	
959		620		G-3	C-3	49.00	—3.00		46.00	285.20	
960		656		G-3	C-3	49.00	—3.00		46.00	301.76	
961		624		G-3	C-3	49.00	—3.00		46.00	287.04	
962		628		G-3	C-3	49.00	—3.00		46.00	288.88	
963		608		C-2	C-3	49.00		+1.50	50.50	307.04	
964		667	Ave.	C-3	C-3	49.00			49.00	326.83	Ave.
965		587		C-3	C-3	49.00			49.00	287.63	
966		632	63.5	G-2	C-3	49.00	—3.00	+1.00	47.00	297.04	30.88
967		630		C-3	C-3	49.00			49.00	308.70	
968		581		G-3	C-3	49.00	—3.00		46.00	267.26	

TABLE 17—Continued

Carcass Data on 206 Head of Cattle Sold at Auction at Archbold, Ohio—April 23, 1969

Consignors Tag Number	Weight		Actual Dressing Percent	Official USDA Grade	Auction Grade	Carcass Price	Quality Adjust-ment	Yield Adjust-ment	Adjusted Carcass Price	Gross Carcass Value	Converted Live Price/cwt.
	Live	Carcass									
969		623		C-3	C-3	49.00			49.00	305.27	
970		609		C-2	C-3	49.00		+1.50	50.50	307.54	
971		660		C-2	C-3	49.00		+1.50	50.50	333.30	
972		615		G-2	C-3	49.10	—3.00	+1.00	47.10	289.66	
973		652		C-2	C-3	49.10		+1.00	50.10	329.91	
974		637	Ave.	C-3	C-3	49.10			49.10	312.77	Ave.
975		704		G-3	C-3	49.10	—3.00		46.10	324.54	
976		743	64.5	G-3	C-3	49.10	—3.00		46.10	342.52	30.87
977		651		C-2	C-3	49.10		+1.00	50.10	329.41	
978		681		C-2	C-3	49.10		+1.00	50.10	344.59	
979		683		G-2	C-3	49.10	—3.00	+1.00	47.10	321.69	
980		685		G-3	C-3	49.10	—3.00		46.10	315.78	
981		691		G-3	C-3	49.10	—3.00		46.10	318.55	
982	940	591	62.9	G-2	C-3	49.00	—3.00	+1.00	47.00	277.77	29.55
983	915	562	61.4	G-2	C-3	48.75	—3.00	+1.00	46.75	262.74	28.71
984	1075	660	61.4	C-3	C-3	49.00			49.00	323.40	30.08
985	1055	681	64.5	G-2	C-3	49.00	—3.00	+1.00	47.00	320.07	30.34
986	995	633	63.6	G-3	C-3	49.00	—3.00		46.00	291.18	29.26
987	975	611	62.7	G-2	C-3	49.00	—3.00	+1.00	47.00	287.17	29.45
988	1020	610	59.8	C-4	C-3	49.00		—1.50	47.50	289.75	28.41
989	955	598	62.6	G-2	C-3	48.75	—3.00	+1.00	46.75	279.56	29.27
990	945	594	62.9	C-4	C-3	48.75		—1.50	47.25	280.67	29.70
991	1045	657	62.9	C-2	C-3	49.00		+1.50	50.50	331.78	31.75
992	1145	690	60.3	C-2	C-3	49.00		+1.50	50.50	348.45	30.43
993		762	Ave.	C-2	C-3	48.90		+1.50	50.40	384.05	Ave.
994		703	63.8	C-2	C-3	48.90		+1.50	50.40	354.31	32.17
995		600		C-3	C-3	49.20			49.20	295.20	
996		670	Ave.	C-4	C-3	49.20		—1.50	47.70	319.59	Ave.
997		626	60.9	C-3	C-3	49.20			49.20	307.99	29.95
998		574		C-3	C-3	49.20			49.20	282.41	
999		618		C-2	C-3	49.20		+1.50	50.70	313.33	

Source: Original data.

RECOMMENDATIONS AND CONCLUSIONS

Recommendations

For future efforts of auction selling of slaughter cattle on a carcass basis, here are some recommendations:

1. In order to obtain more precision in the marketing of cattle, consider both the quality grade and the yield grade of the carcass and use separate, meaningful price differentials for varying quality grades and yield grades.

2. Improve the market operational efficiency by—
   (a) selling cattle in lots which are grouped by estimated quality grade, yield grade, and weight.
   (b) simplifying the identification of animals through the use of shoulder tags.

3. Develop an industry-wide educational program to encourage use of more accurate price differentials for quality grades and yield grades by—
   (a) having educational training programs where cattle feeders estimate the grades of several cattle in the market and later observe the same cattle in the cooler. Thus to have cattle feeders recognize the difference in value between carcasses of high yield and low yield.
   (b) having packers and packer buyers recognize the difference in value between carcasses of high yield and low yield, and developing an effective merchandising effort in informing retailers of value differences between yield grades.

Conclusions

One objective in conducting this experimental auction was to determine if it would be practical to sell slaughter cattle on a carcass basis at a conventional auction. Parties involved in the appraisal meeting indicated that from this point the experiment was successful.

Most consignors to the first sale indicated they would have received a higher price if they had sold their cattle another way on that same day. Some of the concern about price may have been due to the wide range in price within a grade. Buyers were candid in admitting that they were confused, especially at first, in using carcass prices and grade price differentials when buying at auction.

Consignors selling at the second sale, for the most part, were satisfied with the prices received. Both sales were held during the forenoon before the buyers had obtained the day's market and on both days the price of cattle advanced after the auction. At the second sale, it was evident that buyers had a better understanding about bidding, as the range in prices paid was narrowed for the grades.

Buyers have expressed an interest in buying cattle by this method. Buyers not participating in the sales have indicated an interest when more sales are held. The market management and Extension agents have had inquiries from feeders relative to this method of selling and as to when other sales would be held.

Other research data indicate that buyers are not able to estimate accurately the yield grade of live animals. Since yield grade is closely related to carcass yield in terms of the trim, boneless retail cuts from the round, the loin, the rib, and the square cut chuck, an error in yield grade represents an error in estimating the value of a carcass. Thus, increased precision through pricing according to carcass quality grades and yield grades appears desirable.

It is realized that price differentials used in these sales may not have been at the most desirable levels; however, these sales represent the beginning of this type of sale in the United States and will require modification in subsequent efforts.

The authors believe that this type of pricing will be prevalent in a few years, whether this type of sale succeeds or not. This pricing system represents an improvement in accuracy and thus merits consideration.